

JAPAN QUALITY ASSURANCE CRGANIZATION
21-25, KINUTA 1-CHOME, SETAGAYAKU, TOKYO :57 JAPAN
PHONE (03) 3416-011; TELEX 242-2551 JQA J FAX (03) 3416-9691

FCC ID : N7U-ERFOLG1

### REPORT OF MEASUREMENTS

Issue in : Tokyo, Japan Date: November 26, 1998

## JOA APPLICATION NO.: 80-80475

 Applicant : Techtuit Co., Ltd. Techtuit Bldy. 6-17-2, Kameido, Koto-ku 136-0071, Japan

Manufacturer

Integrated Display Technology International Ltd. 41, Man Yue Street Kaiser Estate 9/F Block C Hung Hom, Kowloon, Hong Kong

Description of Equipment : LOVEGETY (Transceiver)

Power Supply Operating Frequency Tuning Frequency Model No. Trade Name FCC ID : LOVEGETY II - 1 : 315 MHz : 300 MHz : 3 VDC N7U-ERFOLG1 ERFOLG

# @ & O & B

FCC Rules & Regulations Part 15 Subpart B&C (June 23, 1989)

Applicable Rule

6. Date of Measurement Place of Measurement : November 13, 1998 (Completed) JQA EMC Engineering Dept.

7. Total Pages of This Report : 13 (including this page)

8. I certify that I am authorized to sign for the report and that all the statement in this report and in the exhibits hereto are true and correct to the best my knowledge and belief.

EMC Engineering Dept. Shigeru Osawa, Assistant Manager Testing Div. Beauch

JQA APPLICATION NO.: 80-80475

FCC ID : N7U-ERFOLG1
Sheet 2 of 13 sheets

#### [Transmitter portion]

Transmitter Fundamental and Spurious Emission: [ §15.231(b)]

The receiving antenna polarized horizontally was varied from 1 to 4 meters and the wooden turntable was rotated 360 degrees to obtain the highes: reading on the field strength meter or on the display of the specirum analyzer. And also, each emission was to be maximized by changing the crientation of the transmitter under test. The device was tested three orthogonal planes. These measurements were repeated with the receiving antenna polarized The transmitter under test was operated continuously in its normal operating mode for the purpose of the measurements. In order to secure the continuous operation of the device under test, reviring in the circuit was down by the vertically. Measurement Method Employed:
Measurements were made under the conditions specified ANSI C63.4. manufacturer so as to affect its intended operation.

3150	2835	2520	2205	1890	1575	1260	945	630	Harmonic Fre	315	Fundamental	(MHz)	Frequency		Distance of Measurement	Operating frequency	Measurement Results:
36.4	35.2	33.8	33.0	31.1	29.5	26.7	36.6	31.2	Frequency	23.0		(dB)	Factor	Antenna	Measureme	requency	Results:
46.7	46.8	46.8	46.8	1		ı		1		1		(dB)	Gain	Amp.	ent.		
٨	^	٨	٨	^	Λ.	٨						_	т.				
52.0	52.0	52.0	52.0	10.0	10.0	10.0	ω ω	15.8		43.6		(dB/uV)	Horiz.	Meter	 w	 ω	
Λ.	^	^	٨	Α.		^								Rec		315 MHz	
52.0	52.0	52.0	52.0	10.0	10.0	10.0	4.7	15.8		42.5		(dB/uV)	Vert.	Reading	3. ( meters	MHz	
: ^	Δ			٨													
< 121.5	< 104.9	< 89.2	< 81.0	114.1	< 94.4	< 68.5	98.9	223.9		2138.0		(uV/m)	Horiz.	Field			/ .
< 121.5	< 104.9	< 89.2	< 81.0	< 114.2	< 94.4	< 68.5	116.1	223.8		1883.6		(uV/m)	Vert.	Strength			

JAPAN QUALITY ASSURANCE ORGANIZATION



FCC ID : N7U-ERFOLG: Sheet 3 of 13 sheets

Note: 1. The spectrum was checked from 30 MHz to tenth harmonics. All emissions not listed were found to be more than 20 dB below the limits.

- 2. The symbol of "<" means "or less".
- 3. The cable loss was included in the antenna factor.
- 4. Sample calculation :

at 315 MHz

10(AF+Mr)/20 = 10(23.0+43.6)/20 = 2138.0 uV/m

Where,

6. Measuring Instrument Setting:

Field Strength Meter: (<1000 MHz)

Detector function : CISPR Quasi-Peak IF Bandwidth : 120 kHz

Spectrum Analyzer: (>1000 MHz)

Detector function : Peak Resolution Bardwidth : 1 MHz

JQA APPLICATION NO.: 80-80475

FCC ID : N7U-ERFOLG1 Sheet 4 of 13 sheets

Radiated Fundamental & Spurious Emissions

FCC ID : N7U-ERFOLG1
Operating Frequency : 315 MHz
10000 FUNDAMENTAL LIMITS [Sec.15.231(b)] : 6042uV/m

									Fi	e1	d.	Str	en	7th	in							_
2	N	( <sub>1</sub> )	5	7	10		20	30	,	ار ا	70	100		200	300	500	700	1000		2000	3000	5000
			res	* 7										SPU			or or				6	$\rightarrow$
		<del> </del>	restricted	The i				+				$\vdash$		SPURTOUS	-	+	טרטחוטטט				Spurious	Fundamental
			ted	Ievel									٦				$\neg$	7		$\vdash$	Sroi	amen
			bands	of										LIMITS	1		C/ TW/T-		-			rai
<u> </u>	-	<u> </u>			ļ	_		-	-			-	_	ı .	-	$\frac{1}{1}$	7267	1		-		Emi.
	-		Were	que,		_	_	<u> </u>	$\dashv$			-		(Sec.				=		×	<u> </u>	Emission
ļ	<u> </u>		Shown	frequencies										15.6			10.431					Š
<u> </u>		<del> </del>	_	<del></del>				-	+					2000/		<u> </u>	7 (0)				-	_
	t		the	DVEN 1		-		$\vdash$	+		_	0				+	`	-				┼
			ave																			
			average	GHz in																		
				a	- 1																	
			value.		-				7	-						$\dagger$			•			-
								-														

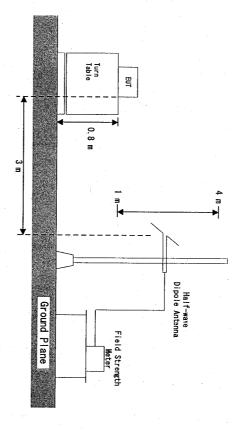
Frequency in [GHz]

JAPAN QUALITY ASSURANCE ORGANIZATION

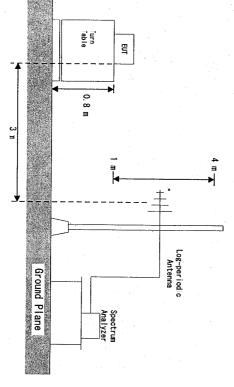


FCC ID : N7U-ERFOLG1 Sheet 5 of 13 sheets

## MESUREMENT SET-UP FOR UP TO 1 GHz



MESUREMENT SET-UP FCR ABOVE 1 GHz



JAPAN QUALITY ASSURANCE ORGANIZATION



JQA APPLICATION NO.: 80-80475

FCC ID : N7U-ERFOLG1 Sheet 7 of 13 sheets

2. Emission Limitation: [§15.231(c)]

Measurement Method Employed: By using a spectrum analyzer with a vertical antenna for picking up the signal, the measurements of the fundamental frequency were made under the following transmitting modes of the EUT.

Neasurements Results : Specified Limits: 0.25 % of the Fundamental Frequency 3:5 MHz  $\times$  0.0025 = 787.5 kHz Refer to the attached graphs.

REF 72.4dBuV RES 8W 100.0kHz

CENTEF 313.890MHz VBW 100.0kHz

SPAN 5000kHz

FCC ID: N7U-ERFOLG1
Model: LOVEGETY II-1

Emission Limitation

Mode of EUT : Transmit

FCC ID : N7U-ERFOLG1 Sheet 8 of 13 sheets

JQA APPLICATION NO.: 80-80475

Emission Limitation

Mode of EUT : Transmit

FCC ID: N7U-ERFOLG1
Model: LOVEGETY II-1

FCC ID : N7U-ERFOLG1 Sheet 9 of 13 sheets

Relative Level to Reference (dB) -40 <u>:</u> 46).00kHz SWP 0.2sec Limit -20dB

-2500 -2000 -1500 -1000 -500 ) -1000 -500 0 500 1000 1500 2000 Deviation from Center Frequency (kHz) 8 8

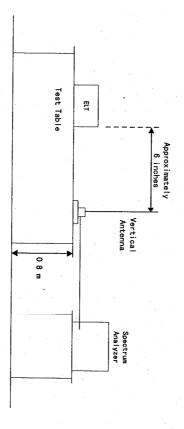
Relative Level to Reference (dB) -5000 -5000 REF 72.4dBuV RES BW 100.0kHz -4000 -3000 -2000 -1000 0 1000 2000 3000 4000 Deviation from Center Frequency (kHz) CENTER 313.890MHz VBW 100.0kHz SPAN 10000kHz SWP 1.0sec

5000



FCC ID : N7U-ERFOLG1
Sheet 10 of 13 sheets

## MESUREMENT SET-UP FOR BAND WIDTH



JAPAN CUALITY ASSUFANCE ORGANIZATION



JQA APPLICATION NC.: 80-80475

FCC ID : NTU-ERFOLG1 Sheet 11 of 13 sheets

[Receiver portion]

3. Radiated Spurious Emissions: [ §15.109(a)]

The field strength measurements of the equipment under test were made at the distance of 3 meters away from the device which was placed on the wooden turntable 0.8 meter in height. Measurements were made under the conditions specified ANSI C63.4. Measurement Method Employed:

The receiving antenna polarized horizontally was varied from 1 to i meters and the wooden turntable was rotated through 360 degrees to obtain the highest reading on the field strength meter. The device was tested three orthogonal planes.

vertically. These measurements were repeated with the receiving antenna polarized

#### Measurement Results:

Tuning Frequency
Distance of Measurement : 300 MHz : 3.0 meters

299.330 500.000 700.000 1000.000 Frequency (MHz) Antenna Factor (dB) (dB/uV) 16.2 < -5.0 < -5.0 < -5.0 Horizontal Meter Reading Vertical (dB/uV) 13.3 < -5.0 < -5.0 < -5.0 (uV/m) 85.1 < 14.3 < 24.0 < 41.7 Horizontal Field Strength at 3 m (uV/m) 61.0 < 14.3 < 24.0 < 41.7 Vertical

Note: 1. The spectrum was checked from 30 MHz to 1000 MHz All emissions not listed were found to be more than 20 dB below

the limits.

2.The symbol of "<" means "or less".
3.The cable loss was included in the antenna factor.
4.Sample calculation:</pre>

At 299.330 MHz

10(Af+Mr)/20 = 10(22.4+16.2)/20 = 85.1 uV/m

Mr = Meter Reading Af = Antenna Factor including the cable loss.

6.Measuring Instrument Setting:

Detector function : CISPR quasi-peak IF Bandwidth : 120 kHz

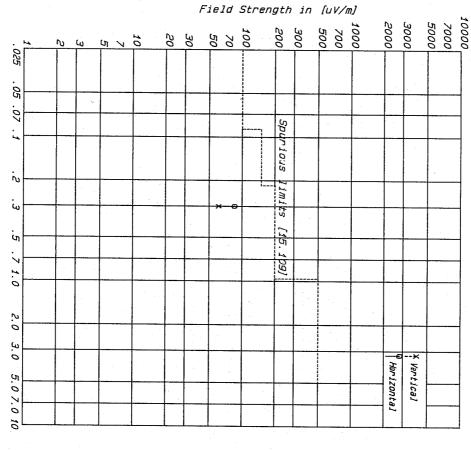


FCC ID : N7U-ERFOLG1 Sheet 12 of 13 sheets

/5 Sneet 12 OI 1

# Radiated Spurious Emission Measurement

RX FCC ID : None Tuning Frequency: 300.000 MHz



Frequency in [GHz]

S JQA APPLICATION NO.: 80-80475

FCC ID: N7J-ERFOLG1 Sheet 13 of 13 sheets

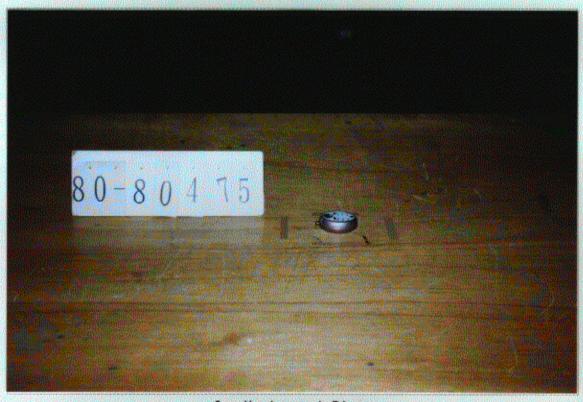
LIST OF MEASUREMENT EQUIPMENT Equipment (Model No.) Ma	Manufacturer	Date of Cal.
<ol> <li>Field Strength Meter</li> <li>ESVP</li> </ol>	Rohde & Schwarz	May 1998
2. Spectrum Analyzer		to Aptr
8566B	Hewlett Packard Inc.	April 1998
3. Tuned Dipole Antenna		
KBA-511 KBA-611	Kyoritsu Electrical Works Kyoritsu Electrical Works	November November
4. Vertical Antenna		
91972-2	Stoddard Aircraft Radio Co., Ltd.	
5. Log-periodic Artenna		
HL 025	Rohde & Schwarz	November 1998

JAPAN GJALITY ASSURANCE ORGANIZATION



FCC ID : N7U-ERFOLG1

Sheet 6 of 13 sheet



for Horizontal Plane



for Vertical Plane

JAPAN QUALITY ASSURANCE ORGANIZATION